

# TRANSCRIPT OF PROCEEDINGS

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In Re: )  
 )  
Public Hearing: Proposed Rule )  
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 )

Pages: 1 through 80

Place: Knoxville, Tennessee

Date: May 27, 1999

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## HERITAGE REPORTING CORPORATION

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Before the  
UNITED STATES DEPARTMENT OF LABOR  
Mine Safety and Health Administration

In Re: )  
 )  
Public Hearing: Proposed Rule )  
 )  
 )

Hyatt Regency Knoxville  
500 Hill Avenue S.E.  
Knoxville, Tennessee

Thursday  
May 27, 1999

a.m. The parties met, pursuant to the notice at 8:30

APPEARANCE:

Thomas Tomb, Moderator

Heritage Reporting Corporation  
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I N D E X

|                     |    |
|---------------------|----|
| Paul Schulte .....  | 10 |
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| Dan Steinhoff ..... | 53 |

Hearing Began: 8:30 a.m.

Hearing Ended: 3:00 p.m.

8:30 a.m.

MR. TOMB: We are going to get started now. I would like to read an opening statement into the record before we take recommendations.

My name is Thomas Tomb. I am the Chief of the Dust Division, Pittsburgh Health and Safety Technology Center. I will be the moderator of this public hearing on MSHA's proposed rule addressing diesel particulate matter exposure of underground metal and nonmetal mines.

Personally, and on behalf J. Davitt McAteer, I would like to take this opportunity to express our appreciation to each of you for being here today and for participating in the development of this rule.

With me on the panel today from MSHA are Jon Kogut, from the Office of Program Evaluation and information Resources; George Saseen, from Technical Support; Sandra Wesdock, from the Office of the Solicitor; Pete Turcic, from Metal and Nonmetal Safety and Health; and Pamela King, from the Office of Standards, Regulations and Variances.

This hearing being held in accordance with Section 101 of the Federal Mine Safety and Health Act of 1977. As is the practice of this Agency, formal rules of evidence

1 will not apply.

2 We are making a verbatim transcript of this  
3 hearing. It will be made an official part of the rule  
4 making record. The hearing transcript, along with all of  
5 the comments that MSHA as received to date on the proposed  
6 rule will be available to you for review. If you want to  
7 get a copy of the hearing transcript for your own use,  
8 however, you must make your own arrangements with the  
9 reporter.

10 We value your comments. MSHA will accept written  
11 comment and other data from anyone, including those of you  
12 who do not present an oral statement. You may submit  
13 written comments to Pamela King during this hearing or send  
14 them to Carol Jones, Acting Director, Office of Standards,  
15 Regulations and Variances at the address you have listed the  
16 hearing notice. We will include them in the rulemaking  
17 record. If you feel you need to modify your comments or  
18 wish to submit additional comments following the hearing,  
19 the record will stay open July 26, 1999. You are encouraged  
20 to submit to MSHA a copy of your comment on computer disk,  
21 if possible.

22 Your comments are essential in helping MSHA  
23 develop the most appropriate rule that fosters safety and

1 health in our nation's mines. We appreciate your views on  
2 this rulemaking and assure you that your comments, whether  
3 written or oral, will be considered by MSHA in finalizing  
4 this rule.

5 In April 1998, MSHA published a proposed rule to  
6 address exposure to diesel particulate matter in underground  
7 coal mines. Hearings were held in 1998. The rulemaking  
8 record will close on July 26th for that rulemaking also.

9 The scope of this hearing today is limited to the  
10 October 29th, 1998 proposed rule published to address diesel  
11 particulate matter exposure of underground metal and  
12 nonmetal miners. This hearing is the fourth of four public  
13 hearings to be held on the proposed rule. The first hearing  
14 was held in Salt Lake City, Utah on May 11th. The second  
15 was held in Albuquerque, New Mexico on May 13th, and the  
16 third in St. Louis on May 25th.

17 On October 29th, 1998 MSHA published a proposed  
18 rule that would establish new health standards for  
19 underground metal and nonmetal mines that use equipment  
20 powered by diesel engines.

21 The proposed rule is designed to reduce the risk  
22 of underground metal and nonmetal miners of serious health  
23 hazards that are associated to high concentrations of diesel

1 particulate matter. Diesel particulate matter is a very  
2 small particle in diesel exhaust. Underground miners are  
3 exposed to far higher concentrations of this fine  
4 particulate than any other group of workers. The best  
5 available evidence indicates that such high exposures puts  
6 these miners at excess risk of a variety of health effects,  
7 including lung cancer.

8           The proposed rule for underground metal and  
9 nonmetal mines would establish a concentration limit for  
10 diesel particulate matter and require mine operators to use  
11 engineering and work practice controls to reduce diesel  
12 particulate matter to that limit. Underground metal and  
13 nonmetal mine operators would also be required to implement  
14 certain "best practice" work controls similar to those  
15 already required of underground coal mine operators under  
16 MSHA's 1996 diesel equipment rule. Additionally, operators  
17 would required to train miners about the hazards of diesel  
18 particulate matter exposure.

19           Specifically, the proposed rule would require that  
20 the diesel particulate matter concentration in underground  
21 metal and nonmetal mines be limited to about 200 micrograms  
22 per cubic meter of air. Operators would be able to select  
23 whatever combination of engineering and work practice

1 controls they want to keep the diesel particulate matter  
2 concentration in the mine below this limit. The  
3 concentration limit would be implemented in two stages: an  
4 interim limit that would go in effect following 18 months of  
5 education and technical assistance by MSHA, and a final  
6 limit five years. MSHA sampling would be used to determine  
7 compliance.

8           The proposal for this sector would also require  
9 that all underground metal and nonmetal mines using diesel  
10 powered equipment observe a set of "best practices" to  
11 reduce engines emissions. An example of this would be use  
12 low-sulfur fuel.

13           The comment period on the proposed rule was  
14 scheduled to close on February 26, 1999. However, in  
15 response to requests from the public for additional time to  
16 prepare their comments and with additional data added to the  
17 rule making record by MSHA, the Agency extended the public  
18 comment period until April 30, 1999.

19           The Agency welcomes your comments on the  
20 significance of the material already in the record, and any  
21 information that can supplement the record. For example, we  
22 welcome your comments on: additional information on  
23 existing and projected exposures to diesel particulate



1 matter and to other fine particulates in various mining  
2 operations; the health risk associated with exposure to  
3 diesel particulate matter; on the cost to miners, their  
4 families and their employers of the various health problems  
5 linked to diesel particulate matter; or additional benefits  
6 to be expected from reducing diesel particulate matter  
7 exposure.

8 The rulemaking record will remain open for  
9 submission of post-hearing comments until July 26th, 1999.

10 MSHA has received comments from various sectors of  
11 the mining community and has preliminarily reviewed the  
12 comments it has received thus far. MSHA would particularly  
13 like additional input from the mining community regarding  
14 specific alternative approaches discussed in the economic  
15 feasibility section of the preamble. You might recall some  
16 of the alternatives considered by MSHA included an approach  
17 that would limit worker exposure rather than limiting  
18 particulate concentration; a lower limit; shortening the  
19 timeframe to go to the final limit; more stringent work  
20 practice and engine controls; and requiring particulate  
21 filters on all equipment.

22 The Agency is also interested in obtaining as many  
23 examples as possible of specific situations in individual

1 mines. For example, the composition of the diesel fleet,  
2 what controls cannot be utilized due to special conditions  
3 and any studies of alternative controls you might have  
4 evaluated using MSHA computerized estimator.

5 We would also like to hear about any unusual  
6 situations that might warrant the application of special  
7 provisions.

8 The Agency welcomes comments on any topics on  
9 which we should provide additional guidance as well as any  
10 alternative practices which MSHA accept for compliance before  
11 various provisions of the rule go into effect.

12 MSHA views these rulemaking activities as  
13 extremely important and knows that your participation is  
14 also a reflection of the importance you associate with this  
15 rulemaking. To ensure that an adequate record is made  
16 during these proceedings, when you present or oral  
17 statements or otherwise address the panel, I ask that you  
18 come to the podium, you clearly state your name, spell your  
19 name and state the organization that you represent.

20 It is my intent that during this hearing, anyone  
21 who wished to speak will be given an opportunity. Anyone  
22 who has not previously asked for time to speak needs to tell  
23 us of your intentions to do so by signing the request to

1 speak sheet or see Ms. Pamela King. Time will be allocated  
2 for you to speak after the scheduled speakers.

3 We are scheduled to go until 5:00 p.m. today,  
4 however, if we run out of speakers, we will cut the hearing  
5 short.

6 I will attempt to recognize all speakers in the  
7 order in which they requested to speak. However, as the  
8 moderator, I reserve the right to modify the order of  
9 presentation in the interest of fairness. I doubt that it  
10 will be necessary, but I also may exercise discretion to  
11 exclude irrelevant or unduly repetitious material and in  
12 order to clarify certain points, the panel may ask questions  
13 of the speakers.

14 Our first presentation this morning is going to be  
15 made by Dr. Paul Schulte from NIOSH.

16 Thank you.

17 DR. SCHULTE: Good morning. I am Paul Schulte,  
18 Director of the Education and Information Division of  
19 National Institute for Occupational Safety and Health. With  
20 me today are Larry Grayson, NIOSH Associate Director for  
21 Mining, Leslie Stayner, Chief of our Risk Evaluation Branch  
22 and David Votaw, NIOSH's Policy Response Coordinator.

23 The following is NIOSH's testimony on the Mine

1 Safety and Health Administration's proposed rule on diesel  
2 particulate matter exposure of underground metal and  
3 nonmetal miners.

4 NIOSH supports the Mine Safety and Health  
5 Administration in its effort to establish new health  
6 standards for underground metal and nonmetal mines that use  
7 equipment powered by diesel engines, thereby reducing the  
8 risk to underground miners of the health hazards associated  
9 with exposure to diesel particulate matter, DPM.

10 The following comments are intended to help  
11 improve the quality of the proposed rule. MSHA has prepared  
12 a thorough review of the health effects associated with  
13 exposure to high concentrations of diesel particulate matter  
14 and NIOSH concurs with the published characterization of  
15 risks associated with these exposures.

16 Since the publication in 1988 of the Current  
17 Intelligence Bulletin 50, Carcinogenic Effects of Exposure  
18 to Diesel Exhaust, NIOSH has considered diesel exhaust to be  
19 a potential occupational carcinogen and has recommended that  
20 exposures to diesel exhaust be reduced.

21 MSHA has proposed a final limit on the  
22 concentration of diesel particulate matter to which  
23 underground metal and nonmetal miners may be exposed of

1 approximately 200 micrograms per cubic meter of air,  
2 equivalent to 160 micrograms per cubic meter of total  
3 carbon.

4 Quantitative risk analyses that were performed by  
5 NIOSH indicate that the risk of lung cancer associated with  
6 an exposure limit of 200 micrograms per cubic meter may be  
7 excessive. A summary of the risks predicted from  
8 alternative analyses of epidemiologic studies for varying  
9 levels of exposure is presented in Table 1 and we will show  
10 it on the screen here.

11 The estimated risks associated even with the  
12 proposed exposure limit of 200 micrograms per cubic meter  
13 range from 21 to 430 excess deaths per 1,000 workers so  
14 exposed over a 45-year working lifetime. Even the lower  
15 bound of this range is well in excess of the risk level of  
16 one per thousand that the US Supreme Court determined to be  
17 significant in the Benzene decision.

18 The fact that the risk observed in these analyses  
19 is high is not surprising considering that 200 micrograms  
20 per cubic meter is higher than the average exposures in  
21 several epidemiologic studies that show significant  
22 increased risk of lung cancer.

23 Despite limitations in the currently available

1 data, there is reason to be concerned that the proposed  
2 exposure limit of 200 micrograms per cubic meter will not  
3 provide adequate protection to miners and that achieving  
4 even lower levels is desirable.

5 NIOSH concurs with MSHA's selection of Analytical  
6 Method 5040, Elemental Carbon, diesel particulate, for  
7 compliance determinations of DPM by mine operators.  
8 Experimental results has demonstrated that this method meets  
9 the NIOSH accuracy criterion of +/- 25 percent of the true  
10 value 95 percent of the time.

11 Application of the method requires alternative  
12 sampling strategies under certain conditions, which will be  
13 described in detail later in this testimony.

14 NIOSH is also prepared a draft manuscript  
15 entitled, "Estimated Technically Feasible DPM Level for  
16 Underground Metal and Nonmetal Mines" that is currently  
17 undergoing peer review. We anticipate that it will be  
18 finalized prior to the closing of the MSHA docket on July  
19 26th, 1999 and we will forward it to MSHA when completed.

20 Preliminary analyses indicate that an exposure  
21 limit below 200 micrograms per cubic meter is achievable  
22 with current technology.

23 Now, or comment on specific aspects of the Federal

1 Register Notice pertaining to the section on supplementary  
2 information under questions and answers about the proposed  
3 rule. Question four states, aren't NIOSH and NCI working on  
4 a study that will provide critical information? Why proceed  
5 before the evidence is complete?

6 NIOSH concurs with MSHA's decision to proceed with  
7 the rulemaking based on the evidence currently available as  
8 presented in this FR notice. MSHA's studies summarized in  
9 Table III-1 of the proposed rule indicates that the current  
10 DPM exposure levels range from 10 to 5,570 micrograms per  
11 cubic meter with a mean exposure level of 830 micrograms per  
12 cubic meter. The NIOSH/NCI study will generate additional  
13 support information on the relationship between DPM exposure  
14 on and health outcome as well as the components of DPM  
15 responsible for the observed health effects.

16 However, given the length of time needed to  
17 complete this study and the current state of knowledge  
18 regarding DPM exposures and health effects in miners, MSHA  
19 is justified in proceeding with the rulemaking at this time.

20 The description on page 58108 of the NIOSH/NCI  
21 study contains several inaccuracies. The FR notice states,  
22 "It is worth noting that while the cohort selected for  
23 NIOSH/NCI study consists of underground miners, specifically

1 underground metal and nonmetal miners, this choice is in no  
2 way linked to MSHA's regulatory framework or to miners in  
3 particular." In fact, this study includes only nonmetal  
4 miners, both underground and surface. Metal miners were  
5 excluded because they have confounding silica and radon  
6 exposures in addition to diesel exhaust exposure.

7 Further on the same page, it is stated, "For  
8 example, one part of the study would compare the health  
9 experiences of miners who have worked in underground mines  
10 with long histories of diesel use with the health  
11 experiences of similar miners who work in surface areas  
12 where exposure is significantly lower." The NIOSH/NCI study  
13 is evaluating only the mortality of the workers. Mortality  
14 should replace health experience in this sentence.

15 The same paragraph also states, "Since the general  
16 health of these two groups is very similar, this will help  
17 researchers to quantify the impact of diesel exposure." It  
18 is more accurate to state, "Since the general health and  
19 other risk factors of these two" and then continue the  
20 sentence.

21 Question five in that section states, "What are  
22 the impacts of the proposed rule?" On page 58111 MSHA asked  
23 for additional scientific studies, models and/or assumptions



1     suitable for estimating risk at different exposure levels.

2             Since the development of the protocol for the  
3     NIOSH/NCI study which contains references to all major  
4     cohort and case-control studies in diesel exhaust-exposed  
5     workers, we have found one additional study in German in  
6     press. This study of potash workers is very similar to the  
7     NIOSH/NCI study and thus benefits from the advantages  
8     inherent in our study, that is, high exposure, clear  
9     exposure gradient, no major confounders, while it also has  
10    the benefit of information on smoking on a subgroup of the  
11    cohort.

12            Because it is a study of miners with the  
13    advantages stated above, we recommend that MSHA consider it  
14    in this rulemaking. The results of the study indicate a  
15    relationship between diesel exhaust exposure and a risk of  
16    lung cancer. Depending on the model and the subgroup  
17    chosen, the elevation of risk varies from relative risks of  
18    1.16 to 3.63 per 20 years of exposure, although not in a  
19    statistically significant manner. Lack of significance  
20    maybe the result of the study having a small cohort,  
21    approximately 5,550 workers, a limited time from first  
22    exposure, average 19 years, a young population, average age  
23    of 49 years at the end of follow-up.

1           Question nine states, what are the major issues on  
2   which MSHA wants comments? On page 58114 MSHA asks for any  
3   additional information on the health risks associated with  
4   exposure to DPM.

5           Enclosed are three publications which support the  
6   hypothesis that DPM compromises the ability of alveolar  
7   macrophages to produce antimicrobial substances and leads to  
8   susceptibility to pulmonary infection. This is a study by  
9   Castranova et al, 1985, the response of rat alveolar  
10   macrophages to chronic inhalation of coal dust and/or diesel  
11   exhaust, a study by Hahon et al, 1985, influenza virus  
12   infection in mice after exposure to coal dust and diesel  
13   engine emissions and a study by Yang et al, 1997, effects of  
14   diesel exhaust particles on the release of interleukin-1 and  
15   tumor necrosis factor-alpha from rat alveolar macrophages.

16           Question 12 states, how is MSHA proposing to  
17   measure the amount of DPM in underground metal and nonmetal  
18   mines? The preamble discussion of the question on pages  
19   58116 and 117 includes several statements referring to NIOSH  
20   Analytical Method 5040. Comments on several passages are as  
21   follows: "The technique being proposed for compliance  
22   sampling in underground metal and nonmetal mines meets these  
23   requirements. It involves sampling with a quartz-fiber

1 filter mounted in an open face filter holder and a chemical  
2 analysis of the filter to determine the amount of carbon  
3 collect. Although the NIOSH method was validated using a  
4 regular respirable dust sampler, MSHA gave consideration to  
5 size selective impactor sampler developed by the Bureau of  
6 Mines that would not collect any dust over one micron in  
7 diameter.

8           And elsewhere, "However, measurements by the  
9 Agency to date indicate that in some underground metal and  
10 nonmetal mines as much as 30 percent of the DPM present may  
11 be larger than one micron in size. The Agency is continuing  
12 to evaluate such an approach, welcomes comments on the  
13 implications to miners and mine operators of excluding from  
14 consideration this larger faction of DPM."

15           Our comment is, as mentioned previously, NIOSH  
16 supports MSHA's selection of method 5040 for compliance  
17 determinations of DPM, but the use of the method requires an  
18 altered sampling method when significant total carbon  
19 interferences are detected in a mine workplace.

20           Diesel particles having diameters above one micron  
21 are respirable size and thus, they should not generally be  
22 excluded from sampling. It is recommended therefore that  
23 respirable samples be collected and analyzed for total

1 carbon, except when significant total carbon interferences  
2 are detected in respirable samples at a mine, in which case,  
3 the newly developed 0.8 micron cut-point impactor should be  
4 used for sampling, followed by total carbon analysis.

5 With particular control technology in place, the  
6 newly developed 0.8 micron cut-point impactor will collect  
7 greater than 98 percent of the DPM mass. In other words,  
8 less than two percent of the DPM would be greater than one  
9 micron in size.

10 Another quote from page 58116, "MSHA does not  
11 believe that either oil mist or cigarette smoke will pose a  
12 problem in using this method. MSHA currently has no data as  
13 to the frequency of occurrence or the magnitude of any  
14 potential interference from oil mist, but during its studies  
15 of measurement methods in underground mines, MSHA has not  
16 encountered situations where oil mist was found to be an  
17 interference."

18 Our comment is combustible liquids such as oil  
19 mists, especially drilling oil, fuel and lubrication oils,  
20 are sources of organic carbon which may exist in the mine  
21 environment. All non-diesel sources of carbonaceous  
22 materials pose a potential interference problem if total  
23 carbon is used as a measure of DPM. It is important to

1 recognize that the presence of OC interferences may not  
2 always be apparent through visual observation of the  
3 workplace and sample filters. Sometimes they are only  
4 recognized during a Method 5040 analytical procedure.

5           It is also important to recognize that the levels  
6 of OC interferences might be low only in relation to the  
7 current levels of DPM. This likely won't be the case when  
8 160 micrograms per cubic meter standard for total carbon is  
9 implemented.

10           In considering all of the potential sources, OC  
11 interferences could sometimes constitute a sizable fraction  
12 of the proposed standard, primarily in respirable dust  
13 samples.

14           Based on the results for mining samples analyzed  
15 by NIOSH investigators and a contract laboratory, carbonates  
16 appear to posed the primary OC interference seen in  
17 respirable dust samples. If the carbonate evolves as a  
18 single peak, a more specific measure of diesel source OC can  
19 be obtained by integrating the carbon peaks separately so it  
20 is not included in the OC results recorded by the  
21 laboratory.

22           Alternately, the samples can be acidified to  
23 remove the carbonate or the newly developed 0.8 micron cut-

1 point impactor may be used to minimize its collection.

2 Based on the mechanism by which oil mists are generated, the  
3 size of droplets should exclude their capture by the newly  
4 developed 0.8 cut-point impactor and thus oil mist  
5 interference should be removed.

6 Question 15 stated, what is the basis for the  
7 concentration limit being proposed in the underground metal  
8 and nonmetal mines? Within that discussion, there is the  
9 quote, "The proposed rule would not bring concentration down  
10 as far as the proposed ACGIH TLV of 150 micrograms per cubic  
11 meter." We note that ACGIH has recently proposed a TLV for  
12 DPM of 50 micrograms per cubic meter rather than 150  
13 micrograms per cubic meter.

14 Question 29 states, what specifically would be the  
15 obligation of an underground metal and nonmetal mine  
16 operator to monitor DPM exposures and correct overexposures?  
17 A quote from this section, "The propose rule does not  
18 specify a required method for sampling. In the absence of a  
19 procedure to convert total carbon measurements into  
20 equivalents under other methods, methods other than Method  
21 5040 would not provide exact information about compliance  
22 status, but they certainly would provide a general guide to  
23 DPM concentrations if used under proper circumstances."

1           Then, later on, it notes under section three,  
2   Method Available to Measure DPM, "There are a number of  
3   methods which can measure DPM concentrations with reasonable  
4   accuracy when it is at high concentrations and when the  
5   purpose is exposure assessment. Measurements for the  
6   purpose of compliance determinations must be more accurate,  
7   especially if they are to measure compliance with a DPM  
8   concentration as low as 200 micrograms per cubic meter."

9           Our comment on this is that it is important to  
10   provide mine operators with the appropriate guidance on DPM  
11   measurement for both assessing exposures and assuring that  
12   DPM levels are in compliance with the proposed standard. Of  
13   the three method listed in Section 3, only NIOSH method 5040  
14   will provide both pieces of information. Submicrometer  
15   sampling and RCD methods are gravimetric. As such, they  
16   might be useful in determining particulate levels near the  
17   proposed interim standard of 500 micrograms per cubic meter,  
18   but not at the proposed final standard of 200 micrograms per  
19   cubic meter. NIOSH Method 5040 is inexpensive and accurate,  
20   and there currently four commercial laboratories that  
21   provide the analysis. The proposed rule should recommend  
22   the use of NIOSH Method 5040 for monitoring by operators.

23           Now, from under the section under background

1 information, heading number three, Methods Available to  
2 measure DPM, there is a quote, "NIOSH Method 5040. In  
3 response to the ANPRM, NIOSH submitted information relative  
4 to the development of a sampling and analytical method to  
5 assess the diesel particulate concentration in an  
6 environment by measure the amount of total carbon."

7 Our comment is, although Method 5040 gives a  
8 measure of total carbon TC, it is important to recognize  
9 that TC is not always a specific marker of diesel  
10 particulate matter because carbonates and non-diesel sources  
11 of organic carbon may be present. Carbonate interference  
12 can be dealt with through acidification of the sample or  
13 minimized by the use of the newly developed 0.8 micron cut-  
14 point impactor which also largely removes other types of  
15 organic carbon. See our comments on pages five and six in  
16 this regard made in connection with oil mist and other  
17 interferences.

18 Another quote in this section, "Studies have shown  
19 that the sum of the carbon accounts for 80 to 85 percent of  
20 the total DPM concentrations when low-sulfur fuel is used."  
21 And it cites a reference of Birch and Cary (1996). We note  
22 that the Birch and Cary citation is not the correct  
23 reference for studies on low-sulfur fuels.



1           Also, we note that the second sentence on page  
2   58129 should be clarified by the insertion of the of the  
3   "non-diesel" as follows: "The only potential sources of  
4   non-diesel carbon in such mines would be organic carbon from  
5   oil mist and cigarette smoke."

6           Additionally, other sources of non-diesel organic  
7   carbon include drill oil mists, and carbon from carbonate.  
8   Where organic based drill oils are used, significant  
9   interferences have been noted in diesel particulate levels  
10  as measured by the RCD method.

11           Another quote in this section, "While samples in  
12  underground metal and nonmetal mines could be taken with a  
13  submicrometer impactor, this could lead to underestimating  
14  the total amount of DPM present. This is because the  
15  fraction of DPM particles greater than one micron is size in  
16  the environment of non-coal mines can be as greater as 20  
17  percent."

18           Our comment is the reference is not appropriate  
19  because the authors did not take measurements in mines.  
20  MSHA's unpublished data noted in the Preamble, which  
21  indicates that the fraction of particles having diameters  
22  above one micron is about 30 percent in some cases and  
23  should be cited with respect to in-mine measurements.

1           Another quote from this section, "Although NIOSH  
2   Method 5040 requires no specialized equipment for collecting  
3   a DPM sample, the sample would most probably require  
4   analysis by a commercial laboratory. MSHA recognizes the  
5   number of commercial laboratories doing the thermal-optical  
6   method is limited. However, there are numerous laboratories  
7   available that have the ability to perform a TC analysis  
8   without identifying the different species of carbon in the  
9   sample. Total carbon would provide the mine with good  
10   information relative to the levels of DPM. MSHA believes  
11   that once there is a need, for example, as a result of the  
12   requirements of the proposed rule, more laboratories will  
13   develop the capability to analyze DPM using the thermal-  
14   optical method."

15           Our comment is, there are currently four  
16   commercial laboratories that perform the Method 5040  
17   analysis and two additional laboratories plan to purchase  
18   the required equipment in the near future. The US  
19   Environmental Protection Agency, EPA, had recommended the  
20   use of the method for its National Ambient Air Quality  
21   Standards Program, PM 2.5. The number of samples coming  
22   from the mining industry will likely be small relative to  
23   that from EPA.

1 Under the section, Use of Alternative Surrogates  
2 to Assess DPM Concentrations, is the quote, "A number of  
3 commentators on the ANPRM indicate that a number of  
4 surrogates were available to monitor diesel particulate. Of  
5 the surrogates suggested, the most desirable to use would be  
6 carbon dioxide because of its ease of measurement."

7 Our comment is, an additional procedures to those  
8 mentioned by MSHA with the use of CO2 as a surrogate, is the  
9 problem of exhaled breath in breathing zone samples.

10 Under the item number five, Limiting the Public's  
11 Exposure to Soot-Ambient Air Quality Standards, we note that  
12 the discussion of PM10 on page 58132 incorrectly lists the  
13 two components of the 1987 EPA standard. They should read  
14 as follows: an annual average limit of 590 micrograms per  
15 cubic meter and a 24-hour limit of 150 micrograms per cubic  
16 meter.

17 Then under Section III, Risk Assessment, section  
18 2(b) Mechanisms of Toxicity, on page 58159, MSHA asks for  
19 additional information on fine particle deposition in the  
20 respiratory tract, especially that might pertain to lung  
21 loading. As previously mentioned on page five of these  
22 comments, we are enclosing the following journal article  
23 that supports decreases in clearance as noted in the animal

1 data study by Castranova that I referred to earlier.

2 That concludes NIOSH's testimony. Thank you.

3 MR. TOMB: Thank you, Dr. Schulte.

4 Do we have any questions?

5 MR. TURCIC: The first one is relative to your  
6 statement and your comments about the accuracy of 5040,  
7 where it is plus or minus 25 percent. Is that as it relates  
8 to the method's accuracy to determining elemental carbon or  
9 for the method's accuracy for determining diesel particulate  
10 matter?

11 DR. SCHULTE: I would like to have my colleagues  
12 be available to answer some of these questions also. I'll  
13 turn to Larry Grayson.

14 MR. TOMB: Can you come to the podium and identify  
15 yourself?

16 MR. GRAYSON: My name is Larry Grayson. I don't  
17 want to misstate that, but it's my understanding that it is  
18 specific.

19 AUDIENCE MEMBER: We can't hear you. Would the  
20 question be asked again, please.

21 MR. TURCIC: The question is is the accuracy  
22 stated in the comments, plus or minus 25 percent, of Method  
23 5040, is that the accuracy as it relates to determining the

1 amount of elemental carbon or is that the accuracy as it  
2 relates to determining the amounts of diesel particulate  
3 matter?

4 MR. GRAYSON: What it does is it relates to the  
5 determinations, all of them, so it would be the elemental  
6 carbon and it would also be the total carbon in  
7 determinations -- those two final numbers. Then the  
8 relationship with DPM would have to be made after that, but  
9 this is relative to the actual measurements.

10 MR. TURCIC: So, it's the accuracy as it relates  
11 to the determination of the amount of carbon on the filter,  
12 not necessarily as that then relates to the amount of diesel  
13 particulate matter.

14 MR. GRAYSON: That's correct.

15 MR. TURCIC: And then the only other question I  
16 have is in the comment you stated the cite of Birch and  
17 Cary. Is it correct? What would be the -- about the 80 to  
18 85 percent, what would be the correct cite and does NIOSH --  
19 what percentage would NIOSH say the total carbon is of  
20 diesel particulate matter?

21 MR. GRAYSON: I thought that cite pertained to the  
22 issue of low-sulfur fuels and they did not refer to low-  
23 sulfur fuels in that reference. We don't necessarily have a

1 reference. We might be able to find one for you, but that's  
2 what we were referring to in that comment. But they did not  
3 speak to the issue of low-sulfur fuels.

4 MR. TURCIC: But they did speak to the 80 to 85  
5 percent.

6 MR. GRAYSON: That's not the objection. This was  
7 a laboratory-type study and it is not talking about low-  
8 sulfur fuels. The 80 to 85, they way you have cited it,  
9 would.

10 MR. TURCIC: Okay.

11 MR. TOMB: But that would be for high-sulfur fuel.  
12 You are saying that they didn't discuss the issue of sulfur  
13 content in that article.

14 MR. GRAYSON: Yes.

15 MR. KOGUT: I want to thank you for the additional  
16 references you gave and the one that you referred to on page  
17 three of the written version of your testimony, can you make  
18 available to us when you submit your technical feasibility  
19 document, at the same time could you also make available to  
20 us that translation?

21 DR. SCHULTE: Yes, we can. And the translation --  
22 the data were in German -- I believe it may be about to be  
23 published as well.

1           MR. KOGUT: For our information, do you have an  
2 author for that article?

3           DR. SCHULTE: I don't think we know that at this  
4 moment, but we can get it to you.

5           MR. KOGUT: Okay. And then with respect to the  
6 three other ones that you listed on the following page, I  
7 want to point out and this might be a point of clarification  
8 because it's not that clear in the Federal Register, but  
9 starting on page 58219, in the third column of that page in  
10 the notice, it begins with a list of supplemental references  
11 in which the alphabetized list starts over again, that Yang  
12 article is listed at the end of that list of supplemental  
13 references, so that might easily have been overlooked, but  
14 it is in there.

15           With respect to study that is in German, I have  
16 one question about that, which is that you mentioned that  
17 depending the model and subgroup chosen, the relative risks  
18 varied from 1.16 to 3.63 per 20 years of exposure, was that  
19 increase across the categories in any way correlated with  
20 the intensity of exposure for the categories?

21           MR. VOTAW: I am afraid I don't have the answer to  
22 that, but we can get you that information.

23           MR. TOMB: I have just one question. In your

1 comment on page eight relative to the inappropriateness of  
2 using what you referenced for particles greater than one  
3 micron, for a percentage of material greater than one  
4 micron, does NIOSH have any publications of data as to --  
5 that would provide us with information on this?

6 MR. GRAYSON: We have none that has been analyzed.

7 MR. TOMB: Okay. You mean from your study that is  
8 going on now. I was wondering if you might make a check --  
9 it seems to me that there might have been some information  
10 in the Morgantown Laboratory where somebody told us that  
11 they had data we respect to that, that that data was  
12 available.

13 MR. GRAYSON: We'll check on that.

14 AUDIENCE MEMBER: Could you repeat that question,  
15 please?

16 MR. TOMB: The question was on page -- you don't  
17 have the page number, but in their comments, NIOSH said that  
18 the -- made the statement that the fact that DPMS greater  
19 than one micron in size in the environment of noncoal mines  
20 can be as great as 20 percent and the Vuk article does not  
21 reference samples collected in mines. I think there is  
22 another reference that I have for that, but they also think  
23 that NIOSH may have may have industry-based supportive data



1 on that also. Since that is a question, maybe you could  
2 just check and see if you have that.

3 MR. GRAYSON: We certainly will.

4 MR. TOMB: Okay. Do you have anymore questions?  
5 Thank you very much for your presentation.

6 DR. SCHULTE: Thank you.

7 MR. TOMB: Our next presentation will made by Dr.  
8 Paul Scheidig from the Nevada Mining Association.

9 MR. SCHEIDIG: Good morning, Mr. Chairman. You  
10 gave me a title that I don't necessarily have, but I'll take  
11 it anyway. Thanks again for this opportunity to comment.  
12 My name is Paul Scheidig, S-C-H-E-I-D-I-G. I am the  
13 Director of Regulatory and Environmental Affairs for the  
14 Nevada Mining Association.

15 The United States metal mining industry has never  
16 shied away from its regulatory responsibilities and the  
17 Nevada Mining industry exemplifies that particular  
18 commitment. Since the "gold boom" cycle began in the early  
19 1980s, our statewide industry has built what are among the  
20 most up to date technologically and environmentally advanced  
21 mines in the nation. Over 11 billion dollars has been  
22 invested in Nevada's mining operations during that time  
23 period, but such funding is not a bottomless reservoir.

1           Nevada metal mines are deeply conscious of their  
2     responsibility to the natural environment and to their  
3     workplaces. However, the continued viability of our  
4     industry is threatened by the plethora of regulations that  
5     already exists, as well as by those recently proposed by  
6     federal government agencies, including MSHA.

7           At the present time, the federal government is  
8     engaged in no less than 90 separate rulemaking proceedings  
9     aimed directly at mining and mineral processing companies or  
10    their immediate customers such as the electric power  
11    generation industry, for example.

12           It is no exaggeration to observe that the level of  
13    new regulation recently proposed by the Department of the  
14    Interior, the Department of Agriculture, the Army Corps of  
15    Engineers, the US Environmental Protection Agency, and MSHA  
16    is overwhelming.

17           A few of the regulatory issues currently facing  
18    the mining industry, in addition to the proposed DPM rule,  
19    include -- and I have got just a short list here: surface  
20    mining regulations proposed by the Department of the  
21    Interior, Bureau of Land Management to revise 43 CFR Part  
22    3809, EPA's Toxic Release Inventory Program, the Clean Air  
23    Act, section 112(r) Risk Management Program, the Clean Air

1 Act's rigorous and constantly changing Title V permitting  
2 program, the Army Corps of Engineers revamping of the  
3 nationwide permit system, EPA's Advanced Notice of proposed  
4 rulemaking to establish new water quality standards, EPA's  
5 new phase IV land disposal restrictions for mineral  
6 processing facilities, EPA's proposal to establish  
7 regulations for persistent bioaccumulative toxics, the US  
8 Fish and Wildlife's Service Endangered Species Act  
9 candidates issues. In Nevada that would include goshawks,  
10 spotted frog, bull trout and sage grouse right now that we  
11 are all looking at.

12 The National Environmental Policy Act requirements  
13 for any significant operational modifications or proposals -  
14 - and by the way, the average cost of an average -- an  
15 average cost for a NEPA document for a Nevada mine is  
16 ranging somewhere around two million dollars -- upwards of  
17 five million dollars for each company operation these days,  
18 so that's not inexpensive process.

19 MSHA's hazard communication rule and MSHA's noise  
20 rule, just to give you a sense of what kinds of rules are  
21 out there that this industry is currently facing and dealing  
22 with.

23 Individually, each of these existing and proposed

1 programs -- considered alone -- may seem to government  
2 regulators reasonable and affordable by the industry. For  
3 example, the Interior Department's proposed 3809 regulations  
4 by the Bureau of Land Management's own estimate will cost  
5 the western mining industry over 160 million dollars.  
6 Nevada's share of that cost is over 93 million or if you put  
7 it on sort of a gold standard, since most of our mining in  
8 Nevada is gold, that will cost us about \$12 an ounce -- with  
9 no obvious benefit to the citizens of the US, nor the metal  
10 mining industry.

11 Similarly, the present diesel proposal will also  
12 cost the industry at least 19.2 million dollars annually to  
13 comply, it's estimated by MSHA. But a more realistic  
14 estimate provided this panel in the Salt Lake hearing by the  
15 National Mining Association is a cost of over 58 million  
16 dollars annually. Again, if you put it on a gold standard,  
17 it's about \$9 an ounce. And a total initial compliance cost  
18 of over 400 million dollars for the industry.

19 The collective and multiplying financial onslaught  
20 of all of these new regulatory compliance costs will cause  
21 severe damage to an industry that is already reeling from  
22 low metal market conditions. Currently the market is  
23 fluctuating around \$273 per ounce for gold and that average

1 total costs for underground mining operations in Nevada in  
2 1997 was about \$271 per ounce.

3 And then you add on those estimated costs of what  
4 we think these regulatory programs will do to us in the near  
5 term and it's going to add at least somewhere between \$40  
6 and \$80 an ounce to the cost of doing business to meet the  
7 new pending federal regulations. And that, we think, will  
8 be very disastrous.

9 No one federal agency is charged with the  
10 responsibility of overseeing the overall economic impact of  
11 diverse regulatory initiatives on an industry. But speaking  
12 for the Nevada mining industry, I can assure the panel that  
13 we feel the sum of all these impacts to our state is already  
14 staggering and the sum is beginning to stagger the entire  
15 metal mining industry in the United States.

16 The proposed DPM rule has an economic impact  
17 analysis, but it appears to have been drafted without any  
18 substantial reference to realistic information provided by  
19 the affected industry. By itself, this rule will impact  
20 heavily on the Nevada mining industry, which is highly  
21 dieselized, while it will only generate marginal health  
22 benefits at best.

23 Other presentations in the previous hearings, but

1 especially in Salt Lake, clearly demonstrated those facts  
2 and it was also underscored in the St. Louis hearings as  
3 well.

4           The cumulative economic impacts of all of these  
5 existing and proposed rules are creating a milieu that  
6 destroys metal mining in the US, is our belief. MSHA and  
7 every regulatory agency affecting mining must be sensitive  
8 to this fundamental concern and propose only regulations  
9 that are truly necessary and those that keep America's  
10 industrial sector, otherwise the goose that laid the golden  
11 egg, alive and well and capable of responsibly meeting  
12 reasonable and appropriate environmental and health  
13 standards.

14           As stated earlier, the costs associated with this  
15 proposal will damage this industry severely. The cost of  
16 retrofitting equipment will be huge. That particular cost  
17 doesn't count or consider the sampling, testing and analysis  
18 costs that this industry has and will continue to bear in  
19 order to evaluate this rule, and any similar subsequent  
20 actions by the industry. An estimate of nearly one million  
21 dollars has already been expended to date by this industry  
22 to evaluate this proposal -- not talking about implementing  
23 any programs, but evaluating this proposal. Nevada's small

1 number of underground mines have spent over \$60,000 just  
2 sampling to date. And we are a drop in the bucket in terms  
3 of the total numbers of mines that are going to be affected  
4 by this rule, yet we are spending a significant amount of  
5 resources in this area. And there is still additional work  
6 to be done for comments that will be delivered by the July  
7 26th deadline.

8           If, as the DPM preamble states, MSHA's objective  
9 is to protect workers, the proposal will fail in that  
10 objective, because, as shown by our comments, it threatens  
11 the continued economic existence of mining jobs it purports  
12 to protect. We do not want to believe that MSHA is  
13 attempting to protect miner's health by forcing them into  
14 other forms or types of employment. We certainly don't  
15 think that they are going to be able to be employed in  
16 underground mining after this rule is promulgated if it  
17 stands as proposed.

18           In a concurring opinion in the Supreme Court's  
19 Benzene decision, former Chief Justice Burger presciently  
20 warned against economically destructive regulations  
21 achieving only marginal or speculative benefits at best,  
22 stating that when discharging his duties under the statute,  
23 the Secretary is well admonished to remember that a heavy

1 responsibility burdens his authority. Inherent in this  
2 statutory scheme is authority to refrain from regulation of  
3 insignificant or de minimis risk. When the administrative  
4 record reveals only scant or minimal risk of material health  
5 impairment, responsible administration calls for avoidance  
6 of extravagant and comprehensive regulation. Perfect safety  
7 is a chimera. Regulation must not strangle human activity  
8 in the search for the impossible.

9 In addition, the Court affirmed the non-delegation  
10 doctrine in deciding that case and in fact, the US Court of  
11 Appeals for the District of Columbia recently reaffirmed  
12 this doctrine on May 14th.

13 A recent Wallstreet Journal article on May 18,  
14 1999 noted that, "The doctrine is alive and well, serving  
15 primarily as a canon of judicial construction to save  
16 otherwise overly broad statutory grants or agency claims of  
17 legislative authority from being held unconstitutional."  
18 Moreover, the article noted in the benzene case that the  
19 Court was faced with a claim that OSHA has untrammelled  
20 discretion to choose any regulatory policy in the spectrum  
21 between regulating at all and imposing rules so stringent  
22 that they take an industry to the brink of economic ruin.  
23 The justices used the nondelegation doctrine essentially to



1     rewrite the statute, limiting OSHA to regulation of  
2     "significant risk". MSHA's proposed rule may be very close  
3     to violating the nondelegation doctrine, especially since it  
4     partially relied on EPA's recently vacated PM 2.5 rule and  
5     has not clearly demonstrated associated health risks to  
6     warrant such a standard.

7             MSHA is a part of the Department of Labor, which  
8     is the federal arm whose paramount responsibility is the  
9     promotion and preservation of jobs for America's workers.  
10    Mining is the highest paying and largest paying employer in  
11    rural America and this is certainly the case in Nevada. It  
12    is incredible to us that MSHA has issued a proposal that  
13    contains a standard that we show cannot be measured  
14    accurately, nor is economically attainable, and has such  
15    great potential to cripple the industry and thereby  
16    frustrate the Department's fundamental goal.

17            In closing, I would like to just summarize some of  
18    the comments that you have heard over the last four days --  
19    four sessions, I should say -- and just review a few of what  
20    we consider to be the findings that we presented.

21            The mining industry does care about possible  
22    health risks associated with occupational exposures, but the  
23    Agency has failed to demonstrate any credible dose-response

1 basis for minute PELs proposed for DPM. The one  
2 occupational study cited in the preamble focusing solely on  
3 miners -- Waxweiler in particular -- was apparently not  
4 adjusted for smoking and a substantial percentage of the  
5 study group may have had little or no diesel exposure. And  
6 that's among the allegedly most supportive pieces of  
7 evidence to which MSHA can point.

8           The so-called best evidence at hand for excess  
9 risk of disease from miner's occupational exposure to DPM,  
10 at best, is ambiguous, conflicting, dubious and incomplete.  
11 It affords neither credible nor substantial evidentiary  
12 support for the severe occupational exposure limits that  
13 MSHA proposes.

14           The Agency's dogged reliance on such spotty  
15 evidence is all the more perplexing to industry in light of  
16 the ongoing NIOSH/NCI study -- which we obviously just heard  
17 about this morning in terms of where it's going -- which  
18 purports to shed much needed light on this murky subject.

19           Congress recently forced the Interior Department  
20 to extend the public comment period on 3809 rulemaking by  
21 120 days to allow for the completion of the National Academy  
22 of Science's Committee on Hardrock Mining upcoming report on  
23 that particular rulemaking. We strongly recommend that

1     NIOSH (sic) similarly stay this proposal light of the  
2     comments on the NIOSH/NCI study.

3             We invite the Agency to sit down at the table with  
4     the industry inappropriate truly collaborative dialogue on a  
5     more reasoned and deliberate approach to DPM control, tied  
6     in part to expected sequential progress on the NIOSH/NCI  
7     study.

8             Another point, industry also believes that MSHA  
9     has so seriously underestimated the real total cost of this  
10    proposal to the metal and nonmetal industry as to blind  
11    itself to the true picture. The proposal is economically  
12    infeasible. As both oral and written comments have made  
13    clear, Nevada underground metal mining cannot afford either  
14    to switch from dieselized mobile equipment, nor comply with  
15    the stringent PELs. Sans a total shutdown of the industry,  
16    the true costs may be three to five times higher or more  
17    than what MSHA has estimated.

18            As the Nevada industry commentators have pointed out  
19    to this panel, there are extremely serious interferences  
20    problems with DPM sampling by the NIOSH 5040 method. MSHA  
21    should be sensitive to the fact that the industry has  
22    already engaged in considerably more sampling by the 5040  
23    method than has the Agency itself. MSHA would be unwise in

1 the extreme to brush off these objections with conclusory  
2 references to unproved corrective sampling and testing  
3 methodologies.

4 One thing is certain: if MSHA forces through this  
5 proposal on the basis of unproven and possibly unreliable  
6 sampling techniques, enforcement actions based on the such  
7 methodologies will immediately generate widespread  
8 litigation challenges.

9 In view of MSHA's rejection of a PEL-approach in  
10 its DMP proposal for the underground coal sector because of  
11 carbon interference problems, the Agency would be well  
12 counseled to sit back, catch its breath, and proceed with  
13 far more deliberation and consultation with industry than it  
14 has so far.

15 MSHA has pointed to the various fine particulate  
16 studies underlying the recent EPA rulemaking to limit the  
17 exposure to the general public. As a regulatory agency,  
18 however, MSHA should carefully consider that the resultant  
19 severe EPA air quality standard based on these studies was  
20 deemed so costly and politically questionable that the  
21 President of the United States stayed its effect into the  
22 next decade -- actually 2005. Moreover, two weeks ago, the  
23 day after MSHA Albuquerque hearing, the United States Court

1 of Appeals for the District of Columbia Circuit struck down  
2 the rule as an over-broad violation of the powers delegated  
3 to EPA by Congress in the American Trucking Association  
4 versus the United States Environmental Protection Agency.

5 For all of the foregoing reasons, the Nevada  
6 Mining Association respectfully urges MSHA to avoid a rush  
7 to overly stringent regulation while there is still time to  
8 discuss this matter reasonably with the affected mining  
9 community. A toolbox approach is a good starting place for  
10 such a dialogue.

11 We invite MSHA to the table to discuss the way and  
12 means of seeking a level playing field within that context,  
13 without imposition of unwarranted PELs.

14 In sum, the Nevada Mining Association urges MSHA  
15 to re-evaluate the proposal and postpone any further action  
16 until such time as real science, sampling, technology,  
17 feasibility issues and epidemiology are more clearly  
18 understood and available for reasoned consideration.

19 The Nevada Mining Association will submit further  
20 comments by the July 26th close of the record.

21 Those are my formal comments. One other  
22 observation that I will make since I have the opportunity of  
23 being at the podium is to make at least some comment or

1 reference to the manner in which the hearings have been  
2 conducted and a concern that I think our association and  
3 some of my members have expressed to me. I took the time  
4 and energy after this particular set of hearings was  
5 announced to make sure that I changed my schedule to be here  
6 at the hearing -- for all four hearings.

7 I was really very surprised and taken back in the  
8 St. Louis hearing to find that two of the panel members that  
9 heard a substantial amount of testimony, especially in Salt  
10 Lake, and then again in Albuquerque -- well, Albuquerque  
11 wasn't quite as substantial -- but they are absent for these  
12 last two hearings in St. Louis and in this location, in  
13 Knoxville.

14 Then another panel member, with all due respect,  
15 joins in St. Louis and in Knoxville here, not having been  
16 privy to nor heard the personal presentations of those  
17 particular presenters in the earlier hearings. I think that  
18 information is lost in the sense of getting an idea of what  
19 people's values are and time in presenting comments to you -  
20 - you know, I think that the sense of their comments would  
21 be lost in the continuity of having a panel hear public  
22 comment and be able to understand the difficulties we are  
23 having with this rule is somewhat compromised because of the

1 fact that you haven't yourselves dedicated that panel to all  
2 four sessions -- like this industry has dedicated itself to  
3 make sure that it was here for all four sessions.

4 In addition, the only other notable thing that I  
5 will make for the record -- and it may sound as a criticism  
6 and maybe it is a criticism to some degree, but I was really  
7 sort of surprised as a person in the audience of how many of  
8 you on the panel, rather than asking questions for  
9 clarification of many of the speakers, were more or less  
10 challenging -- at least from my perception -- challenging  
11 those at the podium relative to the efficacy of their  
12 particular comment or the defense of your particular  
13 proposal, rather than trying to elicit or draw from them  
14 clarifications of what they intended. I felt as if maybe  
15 you were trying to defend your proposal more so than you  
16 were trying to elicit comments on the proposal. And I  
17 certainly hope that isn't your intent, nor the desires of  
18 this panel in that you are objective and open to at least  
19 taking a very serious close look at this proposal and making  
20 sure that you are going down the right path.

21 This industry doesn't want you to necessarily --  
22 just give us a blank check to do what we want, but we want  
23 to make sure that we are also not given such an onerous

1 regulation that we really can't survive in the future. We  
2 want to survive and make sure our employees are healthy and  
3 have jobs and we don't think that this particular proposal  
4 is capable of doing that and making sure that that is a  
5 future we can see or understand.

6 I'll shut up here before I ramble.

7 MR. TOMB: Thank you for your comments. I guess  
8 particularly for the last ones. Let me say a couple of  
9 responses to your latter comments anyway and I don't want  
10 this to be taken as challenging what you said.

11 MR. SCHEIDIG: No, that's fine.

12 MR. TOMB: Since I have been sort of overseeing --  
13 I have let the panel pose the questions -- I thought that in  
14 some of the situations where you may have looked at it as a  
15 challenge, sitting on the other side of the table, I thought  
16 it was a good dialogue, not from a defensive standpoint, but  
17 just an understanding standpoint of how the Agency did look  
18 at the data, so it does provide a perspective there from  
19 that standpoint, for clarification. I'm sorry if it came  
20 across a little differently to the audience.

21 MR. SCHEIDIG: That was my perception.

22 MR. TOMB: Okay.

23 MR. SCHEIDIG: That one could easily draw my



1 conclusion more so than it could yours. But that is my  
2 perception.

3 MR. TOMB: Let me assure you one other thing and  
4 that is all of these comments are important to the Agency  
5 and will be considered more definitely by the Agency. I  
6 don't feel that there is any impact because there had to be  
7 a couple different members on the panel for several of these  
8 hearings. That is what the public record is for. All of  
9 the people that were here are still -- will still be working  
10 basically on this DPM proposed rule and all that information  
11 will be considered with equal importance. Okay?

12 MR. SCHEIDIG: Okay.

13 MR. TOMB: Do we have any questions? Okay, thank  
14 you for your presentation.

15 MR. SCHEIDIG: Do you need a copy of this?

16 MR. TOMB: Yes, I would like a copy.

17 Our next presentation will be by Mr. Chajet of  
18 Patton Boggs.

19 MR. CHAJET: Thank you, Mr. Tomb. I just have a  
20 few items that I would like to ask the panel to respond to  
21 for the record.

22 Number one, Mr. Tomb, would you be kind enough to  
23 provide the names of all of the MSHA personnel who are

1 working on the proposed rule besides those members of the  
2 panel who are here today?

3 MR. TOMB: Do you mean now?

4 MR. CHAJET: If you could, yes.

5 MR. TOMB: There is George Saseen -- you mean  
6 other than the panel that is here?

7 MR. CHAJET: Yes, other than the panel members.

8 MR. TOMB: Okay, there would be Mr. Haney, Robert  
9 Haney, who has been at the other hearings like this one.

10 MR. TURCIC: Do you want who worked on the  
11 proposal or who will be working on --

12 MR. CHAJET: Both.

13 MR. TOMB: Mr. James Custer from metal and  
14 nonmetal. This is only for -- relative to the metal and  
15 nonmetal?

16 MR. CHAJET: Correct. The question goes to the  
17 metal and nonmetal.

18 MR. TOMB: And Mr. Ron Ford, Mr. Peter Galvin,  
19 Deborah Green of the Solicitor's Office. Let me clarify --  
20 or ask a question. You are talking about people again who  
21 specifically worked on it? I can also give the names of J.  
22 Davitt McAteer and --

23 MR. CHAJET: We understand. I'm talking about the

1 policy people at the Agency, the people that were on the  
2 working group that drafted it and are working on it the  
3 finalization of it. I understand the political process.

4 MR. TOMB: I think that's all.

5 MR. CHAJET: The second part of that question is  
6 we would request that the curriculum vitae of the biography  
7 information for each person who worked on the proposed rule  
8 be included in the public record and we would also request  
9 at this point, if each person on the panel could provide for  
10 the public their experience in working in underground metal  
11 and nonmetal mines.

12 I assume from the silence that there is none.

13 MR. TOMB: I'm sorry, you want --

14 MR. CHAJET: I was asking the members of the panel  
15 if they had any experience working in metal and nonmetal  
16 underground mines and I assume from the silence your answer  
17 is none.

18 MR. TOMB: No, Mr. Haney who has been on the panel  
19 has done extensive work in an underground mine. Mr. Turcic  
20 has extensive experience in underground mining and people in  
21 my division who have been each involved in conducting  
22 sampling and make recommendations, studies in mines, have  
23 also had extensive experience in metal and nonmetal mines.

1           MR. CHAJET: For the record, if you could supply  
2 any members of the panel working in underground metal and  
3 nonmetal mines.

4           MR. TOMB: That's what I was going to do.

5           MS. WESDOCK: Henry, do you also want --

6           MR. CHAJET: No, we are not asking the Solicitor's  
7 office for their background. Our interest is in  
8 understanding the experience in metal and nonmetal mining  
9 primarily -- if there are any member with experience  
10 actually having worked in metal and nonmetal mines, by the  
11 MSHA policy makers who are drafting and finalizing the  
12 proposed rule.

13           Second, we would like to ask the panel members if  
14 they have mining engineering education background, degrees,  
15 professional relationships, mining engineering background.  
16 And we would like that included in the record, if any.

17           We would like to ask the panel members whether  
18 they have any automotive or diesel engineering backgrounds  
19 and we would like that included in the record.

20           We would like the panel members to state, any  
21 members who are working on the rule to state their  
22 epidemiological or medical degrees that permit them to  
23 understand risk.

1           Mr. Tomb, for the record, we would like for you to  
2 confirm that you are a member of the ACGIH-TLV committee  
3 along with representatives of OSHA and NIOSH who have  
4 recommended a diesel particulate matter standard very  
5 similar to the proposed rule.

6           MR. TOMB: Okay.

7           MR. CHAJET: You are a member of the ACGIH-TLV?

8           MR. TOMB: Oh, yes, I am.

9           MR. CHAJET: Mr. Tomb, would you also confirm for  
10 the record that the statistical base of DPM exposures  
11 contained in MSHA's proposed rule materials includes  
12 analysis conducted by the Denver MSHA laboratory before it  
13 was closed down?

14           MR. TOMB: I'm sorry, would you repeat that  
15 question, please?

16           MR. CHAJET: Would you please confirm for the  
17 record that the statistical base of DPM exposure materials  
18 contained in MSHA's proposed rule is based on MSHA's Denver  
19 laboratory results?

20           MR. TOMB: I'm not sure I can do that at this  
21 time. I don't think there is any measurements that were  
22 made out of the Denver laboratory.

23           MR. CHAJET: Would you confirm that for the

1 record? We believe that a number of the studies contain  
2 measurements made at the Denver laboratory. We would like  
3 it confirmed for the record.

4 MR. TOMB: DPM? Are you talking about the  
5 particulate measurement?

6 MR. CHAJET: Particulate measurements whether  
7 respirable, combustible dust or whether they are total dust,  
8 whether there were weights that were taken, whether they  
9 were making sub-micron measurements, whatever information is  
10 in your statistical base from the Denver laboratory, we  
11 would like it clearly identified since that laboratory has  
12 been declared to be non-reliable.

13 MR. TOMB: Just for the record, I am not sure that  
14 laboratory has ever been made non-reliable.

15 MR. CHAJET: Mr. Tomb, we would also like for you  
16 to confirm for the record that you and other members of the  
17 MSHA panel have had extensive discussions with NIOSH about  
18 their testimony on the proposed rule prior to today and we  
19 would like you to supply for the record a list of each and  
20 every such discussion along with the date and topic and the  
21 participants of the discussion and a summary of the  
22 discussion.

23 We take your silence to mean that you did have

1 extensive discussions --

2 MR. TOMB: I'm sorry. You put in the record and I  
3 guess I am confused about whether you want it right now --

4 MR. CHAJET: We would like to confirm that you did  
5 have extensive discussions, as did members of the panel,  
6 with NIOSH about their proposed testimony.

7 MR. TOMB: I would say for the record, that we did  
8 not have extensive discussion with NIOSH relative to their  
9 testimony that they presented here today. And we will  
10 document the amount of discussion that was held for the  
11 record.

12 MR. CHAJET: We would assume that would include  
13 discussion on their position on the proposed rule, whether  
14 it dealt directly with the testimony given -- prior to the  
15 testimony. So we would like to documented for the record.

16 MR. TOMB: Say that again.

17 MR. CHAJET: In other words, any discussions that  
18 were held with NIOSH personnel about their position on the  
19 proposed rule, we would like documented through the record.

20 MR. TOMB: We'll put them in the record. I can't  
21 document them at this particular time.

22 MR. CHAJET: I appreciate it. Mr. Tomb, we would  
23 also like you to confirm for the record that MSHA's

1 extensive illness and injury database called the part 50  
2 database which requires mandatory reporting of occupational  
3 illnesses does not support MSHA's or NIOSH's diesel risk  
4 assessment since it discloses relatively few, if any diesel-  
5 related illnesses. We would like that --

6 MR. TOMB: I will have to look into that because I  
7 don't know what that part 50 supports.

8 MR. CHAJET: Would you confirm for the record, Mr.  
9 Tomb, that MSHA has not conducted any analysis of its own  
10 part 50 illness reporting database in proposing this rule?

11 MR. TOMB: I'll have to get clarification on that  
12 before I can put an active statement into the record.

13 MR. CHAJET: Mr. Tomb, for the record, we note  
14 that yesterday Mr. Joe Main of United Mineworkers of America  
15 appeared at a United States Senate oversight hearing before  
16 Senator Enzi's committee on health and safety. During that  
17 hearing, he described NIOSH's risk assessment testimony  
18 position presented today for the first time in public by  
19 NIOSH representatives. Almost concurrent with his  
20 testimony, two of the NIOSH witnesses in their offices  
21 refused to provide public copies of their testimony to our  
22 office yesterday. We believe that the inconsistency in  
23 revealing the testimony contents to the United Mineworkers



1 prior to today's hearing would be inconsistency of not  
2 releasing that public to industry representatives such as  
3 myself demonstrates the ongoing bias that the Agency in its  
4 relationships in supporting United Mineworker's ban diesel  
5 position that has been in place since the days when diesel  
6 engines substituted for coal-powered railroad trains. We  
7 are seriously concerned about that relationship and the  
8 release of that information to the United Mineworkers prior  
9 to today's hearing while simultaneously refusing to make  
10 that information available to industry representatives such  
11 as myself.

12 That's all I have for the record today. Thank you  
13 very much.

14 MR. TOMB: Thank you for your comments, Mr.  
15 Chajet.

16 MR. TURCIC: Don't we get to ask any questions?

17 MR. CHAJET: I would be pleased to entertain  
18 whatever questions you may have.

19 MR. TOMB: Our next presentation, I don't have a  
20 person's name who is going to make a presentation, but it's  
21 going to be from IMC Global. Is there somebody here from  
22 IMC Global that is intending to make a presentation? Do you  
23 want me to take a break and then --

1 AUDIENCE MEMBER: That will be helpful.

2 MR. TOMB: Why don't we do that? We'll take a 20-  
3 minute break and that will give that person time to appear.

4 (Whereupon, at 10:01 a.m. the hearing was  
5 recessed, to reconvene at 10:20 a.m.)

6 MR. TOMB: Before we have the next presenter,  
7 Sandra?

8 MR. WESDOCK: I would like to point out a couple  
9 things regarding the last presenter, Henry Chajet's  
10 testimony. Two points, first regarding his request for  
11 MSHA's information regarding our dealings with NIOSH, I  
12 would like to let you know that everything related to this  
13 rulemaking and our dealings with NIOSH is in the rulemaking  
14 record. If it is not there, then it is irrelevant or it  
15 might involve some other standard and that's why it is not  
16 in the record. So, you can go through the rulemaking record  
17 and everything regarding NIOSH is in the record, the docket.

18 Number two, regarding the requested information  
19 regarding the curriculum vitae and all that other -- you  
20 know, background information regarding the panel,  
21 background, since that information really does not pertain  
22 to diesel particulates rulemaking per se, that information  
23 is available. So if you would like that information, then

1     you can go ahead and do a request to MSHA and that  
2     information will be provided to you.

3             MR. TOMB: Thank you. Our next presenter will be  
4     Dr. Dan Steinhoff from ARSARCO.

5             MR. STEINHOFF: I'm not a doctor.

6             MR. TOMB: Mr. Steinhoff?

7             MR. STEINHOFF: Thank you. My name is Dan  
8     Steinhoff, S-T-E-I-N-H-O-F-F. I'm a graduate mining  
9     engineer from the University of Wisconsin, mining experience  
10    of 26 and half years, about 14 years as a mine manager. I  
11    have been a Safety director, been maintenance manager. All  
12    of these comments and all of my work history are influenced  
13    heavily by what I have done in the past. Hands on person.  
14    I'm an operator.

15            My present position is manager of ASARCO's Young  
16    Mine. We support the comments submitted by NMA and member  
17    companies.

18            My comments given today represent an effort to  
19    protect miner's health and to maintain jobs in the  
20    underground mining industry. The East Tennessee Zinc  
21    District has been in continuous production since the early  
22    1900s. ASARCO's Tennessee Mine Division employs 413 people.  
23    Underground mining provides a major positive impact to the

1 local community. The mines have provided stable employment  
2 together with an excellent benefit package. The proposed  
3 diesel particulate rule could possibly be the last straw for  
4 the mine's continued viability. If you are sensitive to the  
5 commodity market, you know that metal prices are extremely  
6 low at this time. Yesterday LMA price was .45 for zinc.

7 The East Tennessee zinc occurrence is low grade by  
8 anyone's standards. The miners in the district mine the  
9 lowest grade of zinc ore underground in the world today.  
10 Our ore is considered waste by most underground mines.  
11 During 1999 ASARCO's three East Tennessee zinc mines will  
12 mine 2,357,000 tons of ore at a zinc grade of 2.75 percent.

13 Yearly zinc production is 199,300,000 pounds of  
14 zinc metal contained in concentrate with by-product  
15 production of 120,000 tons of masonry sand, 360,000 tons of  
16 ag line, and 1,269,000 tons of washed aggregate. Our  
17 continued ability to mine is strictly based on the cost to  
18 produce a pound of zinc. As underground miners we must be the  
19 lowest cost in the world. That's in the world. The miners  
20 here -- and there are three of them here in the back row --  
21 are the best underground miners in the world.

22 The discussion of the proposed rule has  
23 understated the cost of DPM control. An estimate of costs

1 associated with after-treatment soot traps, computer  
2 controlled diesel engine conversion and use of low-sulfur  
3 diesel fuel has been complete for the three ASARCO operating  
4 mines.

5 The mines have been using EPA number two low-  
6 sulfur fuel for about two years. In the Knoxville area,  
7 low-sulfur fuel contains 0.038 percent sulfur. Number two  
8 diesel off-highway contains 0.16 to 0.18 percent sulfur.  
9 The increased cost of the 607,000 gallons used in a year is  
10 \$18,200. This was the first effort by the division to  
11 control DPM.

12 MR. TOMB: May I ask you a question right there --  
13 I don't mean to interrupt you. Are you saying there that  
14 you are using the lower sulfur fuel?

15 MR. STEINHOFF: Yes, and we have used it for two  
16 years.

17 MR. TOMB: Thank you.

18 MR. STEINHOFF: New equipment has been ordered  
19 with computer controlled engine technology. Detroit D-deck  
20 engines are running in three loaders and two haul trucks.  
21 Two loaders and two trucks are scheduled for delivery in  
22 June for Young Mine and two trucks for Immel Mine with  
23 Detroit D-deck engines.

1 Jumbo conversions to the new Deutz 1013 engines  
2 have been completed at Coy Mine with a conversion schedule  
3 for a jumbo at Young Mine during the month of June.

4 A Detroit D-deck has replaced a Deutz engine in a  
5 loader at Coy Mine with an additional replacement scheduled  
6 in the near future. The cost of a normal Deutz F6L912W  
7 rebuild is \$8,500. The replacement cost of a Deutz BF4M  
8 1013 is \$14,000.

9 In general, the additional cost of a computer  
10 controlled engine is \$5,500 over the normal rebuild cost for  
11 each unit. Replacement of Cat engines in LHD and haul truck  
12 fleet is considerably more expensive. Cat engine rebuild  
13 cost is \$15,500. Detroit D-deck 60 series replacement cost  
14 is \$20,500. Net cost over rebuild cost is \$20,500 for each  
15 unit.

16 The division has made an effort to reduce engine  
17 emissions with the new technology. During the last several  
18 years new equipment has been ordered with catalytic  
19 converters. With the knowledge of engine conversion cost,  
20 an estimate of conversions on existing equipment was  
21 calculated. The cost represents an increased cost of a  
22 conversion over the normal rebuild cost of an engine. The  
23 three mines this total is \$607,500.

1           Since the onset of the DPM proposals, the division  
2   has responded with further efforts to reduce engine  
3   emissions. An opacity meter is in use to measure engine  
4   exhaust giving the mechanic a quantifiable number to  
5   diagnose engines problems and measure his success in engine  
6   repair. Engine exhaust is measured with a 20-second long  
7   load test two times. A snap test includes five  
8   accelerations with the series of five done twice. The  
9   readings are averaged and evaluated. Engine performance is  
10  considered good if the averages are less than 10.

11           The cost of exhaust after-treatment is extremely  
12  expensive. In the past, ceramic type soot filters have  
13  proven not to be durable. Tests by other mines have shown  
14  that the ceramic filter material can become loose within the  
15  canister resulting in crushing of the material and premature  
16  failure.

17           The cost of fitting 130 soot filters at present  
18  prices is \$1,156,000. The filters require a kiln  
19  regeneration at 1,000-hour intervals and may last up to  
20  10,000 hours. This cost is a repeating cost every three  
21  years as filters reach the end of their life. Soot filters  
22  must regenerate during normal operation of the equipment.  
23  The application of the filters is not appropriate for

1 equipment that does not run under full load conditions such  
2 as personnel tractors and supply hauling equipment.  
3 The engine exhaust temperature is simply too low to allow  
4 regeneration.

5 A quick summary of additional costs are: low-  
6 sulfur fuel, \$18,200, engine conversions, \$607,500, complete  
7 exhaust after-treatment, \$1,156,000. This total package  
8 will cost \$1,781,700.

9 MSHA proposes that mines will only be able to use  
10 MSHA approved engines. This is fine for mining equipment  
11 manufacturers. Mines utilize other equipment that is not  
12 specifically manufactured for the mining industry. These  
13 include road graders, tractor used as equipment and  
14 personnel haulers, forktrucks, dozers, tractor mounted  
15 backhoes, tractor mounted impact breakers. Under the  
16 present proposal, none of the equipment could be used.  
17 Are equipment manufacturers going to go through MSHA, to go  
18 the engine approval process for underground mining market?

19 The division utilizes 34 tractors for personnel  
20 and equipment hauling. That represents 1530 horse power.  
21 An industrial tractor with an in-house fabricated bed cost  
22 \$18,000. There is no replacement vehicle on the market at  
23 that cost. Will Case build a backhoe for underground use



1 with an MSHA-approved engine? The backhoe with an impact  
2 hammer offers both a safe and efficient alternative to the  
3 conventional breakage of oversize material utilizing a drill  
4 and explosives. The proposed rule limits an operator's  
5 ability to provide diesel-powered service equipment that is  
6 both safe and economical.

7 The proposal further complicates engineer repair  
8 part availability by requiring only MSHA-approved engine  
9 parts. Again, the repair parts will be provided at a  
10 premium cost.

11 The underground mining market represents and  
12 extremely small segment of the total engine market. MSHA  
13 must consider the total economic impact of the proposed DPM  
14 rule.

15 MSHA has estimated the average exposure of  
16 underground miners is 1,835 micrograms per cubic meter. The  
17 proposed rule requires operators to decrease the exposure to  
18 400 micrograms per cubic meter within 18 months of the final  
19 rule's publication.

20 As will be presented in NMA's post-hearing  
21 comments, Dr. Peter Valberg of Cambridge Environmental has  
22 calculated an occupational exposure to 500 micrograms per  
23 cubic meter diesel exhaust yields a mutagenic dose

1 equivalent to smoking approximately one cigarette per month.

2 Do engine manufacturers have the capability to  
3 produce the quantity of the new technology engines required  
4 to meet the 400 microgram per cubic meter exposure limit?

5 ASARCO's three Tennessee mines would require 56 Deutz BF4M  
6 1013 engines, four Detroit D-deck 50 series engines, and 12  
7 Detroit D-deck 60 series engines to convert drilling and  
8 muck hauling equipment.

9 We are not convinced that the new technology-type  
10 diesels will decrease the DPM exposure to the proposed  
11 limits. In addition to engine controls, underground  
12 ventilation will never approach surface conditions. Anyone  
13 involved with mine ventilation will tell you it is  
14 physically impossible.

15 Within the preamble is a risk assessment which  
16 serves as the Agency's basis that miners are at risk for DPM  
17 exposure. The Agency, industry and even medical experts  
18 cannot agree on the risk of diesel particulate exposure.  
19 Currently, NIOSH and the National Cancer Institute are  
20 conducting a scientific study to assess the effects of  
21 diesel particulate exposures in the mining industry. We  
22 support the efforts of the companies involved in that study  
23 and would urge the Agency to await the results of that

1 investigation before promulgating final rules. This study  
2 has the potential fill in many of the knowledge gaps that  
3 exist regarding diesel exposure in mining.

4 Under the proposed rule, a single sample above the  
5 TLV triggers both penalties and action up to and including a  
6 diesel particulate control plan. MSHA will and does expect  
7 operators to demonstrate plan effectiveness by monitoring  
8 their employee's exposures. Good industrial hygiene  
9 practice indicates that multiple samples must be taken to  
10 assess employee's occupational exposure. That same should  
11 be true for determining if an over-exposure is present.  
12 Area samples would be allowed under the proposal.

13 The Agency recognizes that a diesel engine  
14 produces varying amounts of particulate depending upon  
15 engine load and speed. Load and speed are varied during the  
16 engine approval process by MSHA. Under the proposal, an  
17 area sample could be taken under conditions of acceleration  
18 at low RPM which is the time that an engine is working at  
19 its lowest efficiency.

20 The Agency recognizes an entire duty cycle during  
21 testing, but under the proposed rule, only a portion of an  
22 engine's duty cycle would be sampled. An area sampled does  
23 not protect the health of miners because it does not

1 represent a true occupational exposure.

2           The proposed regulation limits the working hours  
3 of employees. From an operator's point of view, this  
4 limitation would be nearly impossible to manage. Which  
5 employees would be limited in working time? Repair  
6 employees work over the entire mine. How do you quantify  
7 the exposure under the varying conditions of an employee  
8 working in intake air at the main shaft for two hours in a  
9 shift, three hours on a conveyor that may or may not have  
10 diesel equipment operating in the up-stream ventilation, and  
11 three hours on a rail haulage shoot in a mine exhaust  
12 stream? The Agency is requiring an impossible task that  
13 crosses the line with overtime considerations in negotiated  
14 labor agreements.

15           Ventilation is the last issue to address. The  
16 division has begun to utilize Vnet computer programs to  
17 model each mine's ventilation circuit. The East Tennessee  
18 zinc mines extract ore by unsystematic room and pillar  
19 methods. The ore occurrence is contained within irregular  
20 collapse breccia structures. I might add that's dolomite  
21 and limestone, magnesium, calcium carbonate as well as  
22 calcium carbonate. Active stopes and haulage areas can  
23 range from 16 feet by 16 feet drifts to 80-foot high stopes

1 with 35 to 40 diameter pillars. Typical stopes can be  
2 several hundred feet in both length and width. Airflow  
3 through these high and wide stopes is difficult to measure  
4 due to the large cross sectional area. During the last  
5 year, auxiliary fan and motor size has been increased from  
6 40 horsepower to 75 horsepower. Bag ventilation tube has  
7 been increased from 30-inch diameter to 36-inch diameter.  
8 Typical ventilation circuits are complex due to the  
9 systematic nature of the ore occurrence and the mining  
10 method.

11 As a result, it is difficult to construct a  
12 completely accurate model of ventilation in the small areas  
13 covering a single working area. Air quality must be checked  
14 in working areas to confirm proper ventilation for the  
15 control of exhaust and blasting gases. DPM exposures will  
16 require this same confirmation. Mine ventilation circuits  
17 depend on openings with the surface.

18 Young Mine began production in 1956. It covers  
19 two and half square miles. Modification of the existing  
20 ventilation circuit is dictated by the configuration of the  
21 existing mine.

22 An air shaft was sunk in Immel Mine during 1994.  
23 The cost of a conventional 14-foot diameter concrete lined

1     ventilation shaft is \$1,807 per foot. The total cost of an  
2     additional air shaft 1,200 feet long would be estimated at  
3     \$2,193,400 complete with fan. The yearly power cost of a  
4     200 horsepower fan is \$50,000.

5             I might add that the economic impact in the  
6     discussion section appears to be really low when we have  
7     gone back and looked at the cost of these items, the cost of  
8     compliance. As managing mines, we have done a lot of things  
9     to try to improve air quality. I firmly am convinced that  
10    we are not going to be able to meet the standards, at least  
11    at East Tennessee Zinc Mine. It's going to be extremely  
12    difficult. And this is from an operator's point of view,  
13    from a practical point of view and not from a model point of  
14    view. It's going to be a difficult task.

15            Any questions?

16            MR. TOMB: Thank you for your presentation.

17            MS. KING: Any questions?

18            MR. TURCIC: I have one. The cost that you show,  
19    is that only the cost for the purchase of like the engine or  
20    does that also include the installation?

21            MR. STEINHOFF: That includes the installation and  
22    any modifications that we have to make to the equipment.

23            MR. SASEEN: Could you for the final record, when

1     you submit comments, could you break down those costs a  
2     little bit better on --

3             MR. STEINHOFF:  What kind of breakdown would you  
4     like?  Do you want to know labor costs --

5             MR. SASEEN:  Yes, labor costs --

6             MR. STEINHOFF:  Do you want to know how much it  
7     costs to change the machine?  Do you want to know the cost  
8     from loss of production?  If we factor that in, it's huge.

9             MR. SASEEN:  However you want to break it down,  
10    but that will give us an idea of what you are saying -- like  
11    rebuilding -- you are saying instead of rebuilding, you are  
12    replacing, you have got higher costs.  If you could itemize  
13    or somehow show what some of the things are that are  
14    involved in that, so we can see that.

15            MR. STEINHOFF:  One thing that you have to  
16    understand, this involves several different types of rigs.

17            MR. SASEEN:  That's good --

18            MR. STEINHOFF:  For instance another would have  
19    the same Deutz engine as jumbo has in it, but depending upon  
20    the frame modifications you have to make to accommodate the  
21    new engine as well as being able to accommodate torque  
22    converters, I have used an average cost there from our  
23    history.  I can get you an average cost.  It won't be

1 exactly right on the money, but, yes.

2 MR. SASEEN: You have a good point that different  
3 machines use the same engine. Maybe you could specify what  
4 types of experience you have with different machines.

5 MR. STEINHOFF: And some we haven't converted yet  
6 either.

7 MR. SASEEN: And I know that.

8 MR. STEINHOFF: For instance, locomotives. We  
9 haven't done that yet.

10 MR. SASEEN: But any of that information, because  
11 rebuild, like you said, it is an important issue and it does  
12 vary, so that type of information.

13 MR. TURCIC: What has been your experience when  
14 you have changed an engine relative to the amount of  
15 engineering work that you need to do in order so that the  
16 new engine matches the equipment? If you have to change a  
17 lot of other components --

18 MR. STEINHOFF: The first one is extremely  
19 painful. The first D-deck change probably took three months  
20 to complete. There were a lot of things that weren't  
21 anticipated. We brought in the equipment manufacturer as  
22 well as a engine manufacturer. The jumbo change that we  
23 have will be on a Canon jumbo. We brought in again, the



1 Canon people and the Deutz people. Most of the engineering  
2 is done on the fly. It's very difficult to get an equipment  
3 manufacturer to come back and say I want to retrofit an  
4 engine. Well, he can do it for you -- at a cost. It's much  
5 easier to get the components that you think you need and to  
6 do it on the spot and go from there.

7 Another problem with equipment is that each  
8 carrier is different. Many times engines and how they line  
9 up and what kind of converters are used are different even  
10 though it's the same model.

11 MR. SASEEN: That \$18,200 that you specified, I  
12 assume that is your increased cost in going from the high-  
13 sulfur to the low-sulfur?

14 MR. STEINHOFF: That is the difference in cost  
15 between just number two fuel and EPA low-sulfur. That is  
16 just the difference.

17 MR. SASEEN: Does that include the highway tax or  
18 is that --

19 MR. STEINHOFF: There are no highway taxes on off  
20 the road fuels.

21 MR. SASEEN: On off the road fuels.

22 MR. STEINHOFF: Right.

23 MR. SASEEN: On the low-sulfur fuel that you are

1     buying --

2                 MR. STEINHOFF:  There are no highway taxes.  We  
3     are off the road.  You can go to anybody and say I want to  
4     buy low-sulfur fuel, I am using it off the road.  They won't  
5     include the highway tax.

6                 MR. SASEEN:  Okay.

7                 MR. STEINHOFF:  They will dye the fuel so that if  
8     you do put it in your tank, you can get caught.

9                 MR. SASEEN:  I have heard of companies -- they  
10    have to pay the tax and then they go back and they can get a  
11    refund or something.

12                MR. STEINHOFF:  I would add that the fuel  
13    distributor was very reluctant to do this because it  
14    requires that the fuel be dyed because we use it off the  
15    road and if he were to dump that in Joe Blow's gas station  
16    down the street, he would have a tremendous problem.  So,  
17    distributors are really reluctant to give you the EPA low-  
18    sulfur fuel.

19                MR. SASEEN:  You talked about your engine test,  
20    the load test and the snap acceleration test, and you  
21    consider the average is less than 10.  Are those numbers --

22                MR. SASEEN:  I really couldn't tell you.  I  
23    couldn't tell you what numbers they are.  All I know --

1           MR. SASEEN: Could you give us a little more  
2 information in your submittal on what kind of -- on the  
3 procedure of the test and what that 10 means?

4           MR. STEINHOFF: Really, all it is measuring the  
5 opacity of the exhaust. It really doesn't have anything to  
6 do with -- it does have the particulate load -- obviously if  
7 the opacity is higher, it's a higher particulate load. But  
8 what it does do is it gives you not necessarily a diagnostic  
9 number that is perfect that you would find in a laboratory,  
10 but it gives something for a mechanic to understand -- look,  
11 this has got a problem with the exhaust, is it on the air  
12 cleaner system or is it on the fueling system. And it gives  
13 them a better way to diagnose a problem.

14          MR. SASEEN: Thank you.

15          MR. KOGUT: You stated that MSHA has estimated  
16 that the average exposure of underground miners is 1,835  
17 micrograms per cubic meter. I assume you were talking about  
18 underground metal and nonmetal mines?

19          MR. STEINHOFF: Yes.

20          MR. KOGUT: I'm not clear on where that 1,835 came  
21 from.

22          MR. STEINHOFF: It came from a graph in the  
23 discussion.

1           MR. KOGUT: Do you know off hand which graph you  
2 are referring to?

3           MR. STEINHOFF: I can get it for you.

4           MR. KOGUT: I want to just clarify that there are  
5 really two separate estimates of the average concentration  
6 of diesel particulates presented in the proposal. One is in  
7 table 3-1, which is the average of the exposures in MSHA's  
8 field studies that were taken in production areas and  
9 haulage ways of underground metal and nonmetal mines and the  
10 average exposure for those concentrations that MSHA observed  
11 was 830 micrograms per cubic meter.

12           And then the other estimate that is contained in  
13 the proposal is based on test data on engines combined with  
14 MSHA's diesel equipment inventory. That is contained in  
15 table 3-7 in the proposal and the estimate there after  
16 adjusting for the duty cycles of the engine is 1319  
17 micrograms. Maybe we can clarify this if you tell me what  
18 graph you are talking about.

19           MR. STEINHOFF: If you turn to page 58105, figure  
20 I-1 comparative exposures.

21           MR. KOGUT: Yes.

22           MR. STEINHOFF: Dock workers, truck drivers,  
23 railroad workers.

1           MR. KOGUT: Right, the top of that bar represents  
2 the average exposure that was measured at that underground  
3 metal and nonmetal mine that had the highest average  
4 exposure.

5           MR. STEINHOFF: That isn't what this says. It  
6 says comparative exposures.

7           MR. KOGUT: Just a minute.

8           MR. TURCIC: That wouldn't change anything you  
9 have said anyhow, right? I don't see anything in what you  
10 wrote up where whether that number is 1,835 or 1,310 where  
11 that affects anything you are saying.

12          MR. STEINHOFF: I think it's pretty important. It  
13 shows where have we come from and where are we going.  
14 That's a pretty high number. We are talking about getting  
15 down to 160 micrograms.

16          MR. KOGUT: Excuse me, but what the caption says  
17 is the range of average DPM exposures observed in various  
18 mines, so that bar represents a range of average exposures  
19 observed at individual mines.

20          The bottom of the bar, which is as you might  
21 notice is just a little bit above the zero line, the zero  
22 axis, represents the average exposure at an underground  
23 metal and nonmetal mine that has the lowest average exposure

1     that was observed in the MSHA field studies and the top of  
2     the bar is the average exposure at that underground mine,  
3     which MSHA observed the highest average exposure. If that  
4     is not clear in the caption, I apologize, but that is what  
5     the bar is meant to depict.

6             AUDIENCE MEMBER: Is he asking a question or  
7     cross-examining?

8             MR. KOGUT: No, I'm not cross-examining.

9             MR. TOMB: He is explaining the graph.

10            MR. KOGUT: I am just trying to clarify what this  
11     graph shows.

12            MR. STEINHOFF: I misunderstood. I thought we  
13     were looking at averages.

14            MR. KOGUT: No, the averages across the  
15     underground metal and nonmetal mining industry that are  
16     estimated are given in those two tables that I mentioned.

17            MR. STEINHOFF: At any rate, we are going from a  
18     high number to a lower -- much lower number.

19            MR. KOGUT: One other thing I just wanted to  
20     clarify. There is the place in your testimony where you --  
21     on page eight of the written version of your testimony you  
22     said under the proposal that area samples could be taken  
23     under conditions of acceleration and low RPMs and so forth.

1 The only thing I want to clarify there is that the intention  
2 of the proposal is that samples should all be full shift  
3 samples.

4 MR. STEINHOFF: I think that my point is that when  
5 you put a sampling instrument in an area, not where  
6 employees are working, but just in an area, you don't know  
7 what an occupational exposure is. And I think that is an  
8 important thing. There is -- you could be in down-stream  
9 ventilation where no one is working and sample the air.  
10 Remember we are talking about very low limits here. You  
11 could have it where streams come together, it could be only  
12 part of the engine cycle.

13 In other words, if you have several trucks running  
14 in a ventilation stream and you put it at the absolute worst  
15 place, during that duty cycle, where the engine is working  
16 at its most inefficient, you are going to get a high sample.  
17 But if you put it on the employee that is going to be in the  
18 range of those places, the sample is going to be lower.

19 In most cases, you know, when an engine is working  
20 near the top of its RPMs -- probably say in like a 95  
21 percent mode, not during acceleration phase, but running in  
22 that area, that's a sweet spot. The lowest emissions occur  
23 in that area. The highest emissions are at idle and during

1 acceleration.

2           You have got to look at the whole cycle. You  
3 can't just look at one place. An employee is not standing  
4 there for eight hours. He's on a piece of equipment.  
5 That's what I mean.

6           MR. SASEEN: Mr. Steinhoff, a few more questions.  
7 On page four you mentioned cost of fitting 130 filters at  
8 the present price of \$1,156,000.

9           MR. STEINHOFF: Yes.

10          MR. SASEEN: The 130, is that all the engines in  
11 your mine?

12          MR. STEINHOFF: That would be all the engines that  
13 we have.

14          MR. SASEEN: Could you again in your final  
15 comments, could you break that down -- the horsepower of the  
16 vehicle and so on?

17          MR. STEINHOFF: Sure, that's not a problem.

18          MR. SASEEN: One last thing, have you had a chance  
19 or have you done any work with our estimator spreadsheet to  
20 show as you are getting these new engines -- because you  
21 gave some ventilation numbers in your engines.

22          MR. STEINHOFF: One problem with the estimator  
23 that I found was getting the data feed -- being able to find



1 out what the exact emissions are for the engines. It's got  
2 a thing from Cat that doesn't show you one number, it shows  
3 you a million numbers -- which one do you use?

4 During the discussion -- our ventilation is  
5 extremely difficult to model because we have got large open  
6 stopes. I haven't used the estimator mainly because I  
7 couldn't find the data that I needed to feed it and I'm  
8 afraid that that model is going to be really hard to get  
9 anything hard out of it -- to get some hard data out of it,  
10 could we even achieve it? I don't know at this point.

11 To answer your question, no, I haven't used it.

12 MR. SASEEN: Thank you.

13 MR. TOMB: I just have a couple. In your  
14 conversions that you are making in your engines or putting  
15 new engines in --

16 MR. STEINHOFF: Yes.

17 MR. TOMB: Like, at what rate does that usually  
18 take place in your mine?

19 MR. STEINHOFF: Right now, we are converting those  
20 engines as rebuilds occur. So, in other words, if we build  
21 the hours on the existing engines, we are looking to go to  
22 the newer technology in -- 18 months is a real narrow zone  
23 to try to --

1           MR. TOMB: How about -- it's five years to get  
2 down to the final limit, whatever that would end up being.  
3 Is that a reasonable time to convert over your fleet?

4           MR. STEINHOFF: Provided we would be able to run  
5 out the engines that we have the money in now, if they would  
6 have enough hours on them to change.

7           MR. TOMB: Do you think you would run that out or  
8 would you need more time to do that?

9           MR. STEINHOFF: It depends on what units -- on the  
10 high-use production equipment, yes, we would be able to  
11 achieve that in five years.

12          MR. TURCIC: What kind of rebuild cycle do you  
13 have?

14          MR. STEINHOFF: It depends on the type of engine.  
15 Usually we do a light, in-frame build at about 7,000 hours.  
16 At around 10,000 hours, it would take a complete rebuild.  
17 Then again, it depends on the use of the equipment -- how  
18 many shifts do you run, how many days a week.

19          MR. TOMB: Have you made any measurements in your  
20 mines at all relative to diesel levels?

21          MR. STEINHOFF: Yes, we have.

22          MR. TOMB: What kind of levels are you finding in  
23 your mines as they presently exist?

1           MR. STEINHOFF: Right now -- and this is off the  
2 top of my head -- we are at as an average of about 850  
3 micrograms per cubic meter. That's total carbon. That's  
4 not only half of the story. You want it all. That's all of  
5 it.

6           You know, we are like any other mine. We have got  
7 hydraulic drills and you get oil mist from them. Diesel  
8 engines, you are going to get some lubricating oil going  
9 past the rings in that engine. Everybody knows that. We  
10 have got -- we have got carbonaceous shale --

11          MR. TOMB: So what method -- I missed it --

12          MR. STEINHOFF: NIOSH 5040. Open-faced cassettes.

13          MR. TOMB: Open-faced cassettes?

14          MR. STEINHOFF: Yes.

15          MR. TOMB: Maybe I missed this, but what is the  
16 quantity of air that you have in your mine right now?

17          MR. STEINHOFF: We are right at about 350,000 CFM,  
18 somewhere in that neighborhood. Because we are two and half  
19 squares miles, you look at only parts of the mine a time.

20          MR. TOMB: Yes, I know. But you have a total of  
21 350,000 available. Like, what do you take to your working  
22 places?

23          MR. STEINHOFF: It depends. Depends on the break

1 -- 40, 50, sometimes 60,000.

2 MR. TOMB: And you are using auxiliary fans.

3 MR. STEINHOFF: We are using auxiliary fans to  
4 direct off of main, off of your main ventilation stream.

5 MR. TOMB: And that is blowing?

6 MR. STEINHOFF: In general we do blow. The only  
7 time that we use an exhaust system, in general -- we use two  
8 fans. You nearly always have to have one blowing to mix the  
9 air and then another one exhausting to get good circulation.

10 MR. TOMB: Have you equipped your equipment, any  
11 of your equipment with filters?

12 MR. STEINHOFF: With a soot trap?

13 MR. TOMB: Yes.

14 MR. STEINHOFF: No.

15 MR. TOMB: You haven't used that at all. From  
16 what I recall in your presentation, that was -- you feel  
17 it's a problem with you operating temperatures --

18 MR. STEINHOFF: Operating temperatures are a  
19 problem. The durability of the filters. A lot of  
20 manufacturers says, shoot, they are going to last you 10,000  
21 hours. Some of those things are over \$10,000 a piece. What  
22 if they only last you 1,000 hours? And I am at .45 zinc.  
23 I'm trying to manage a mine. It gets really difficult.

1           MR. TOMB: I want to say that you have really  
2 given us a lot of good information. This is the really the  
3 kind of stuff that we need and hopefully -- maybe we could  
4 get some discussions with you, if you don't mind, relative  
5 to the estimator. If we knew specific information --

6           MR. STEINHOFF: I don't think the information is  
7 available from Ford Tractor and that's 1,500 horsepower.  
8 They are not going to tell me what a three-cylinder --

9           MR. TOMB: Yes, yes, I understand.

10          MR. STEINHOFF: Well, I need to know that if I am  
11 going to use that thing.

12          MR. TOMB: Yes, well, you can take worst-case  
13 estimate --

14          MR. STEINHOFF: I don't want to use worst case.  
15 We are talking about spending thousands of dollars --  
16 millions of dollars. Let's just take an estimate and spend  
17 millions of dollars. We can't do that.

18          MR. TOMB: Okay, I appreciate that. Any other  
19 questions? Thank you.

20          MR. STEINHOFF: Thank you.

21          MR. TOMB: Well, that concludes the presenters  
22 that have signed up to make presentations. Is there anybody  
23 else in the audience that would like to make a presentation

1 at this time? Or make any additional comments?

2 Okay, we are going to close the record at this  
3 time. I want to thank you, those of you who did make a  
4 presentation today. I think we have gotten some good  
5 comments in today. I commend you for participating in this  
6 hearing.

7 I am going to close the record now, but we are  
8 still going to be here and I plan on probably coming back at  
9 12:30 and we will reopen the record at that time in case  
10 anybody else shows up or any of you want to come back and  
11 make a presentation at that time.

12 Thank you very much.

13 (Whereupon, the hearing was recessed and the  
14 record closed until 12:30 p.m.)

15 MR. TOMB: The record is now open and we will wait  
16 for 15 minutes to see if anybody else shows up for  
17 presentation.

18 (Off the record.)

19 MR. TOMB: We are going to come back at 3:00 and  
20 reopen the record again.

21 (Whereupon, the hearing was recessed until 3:00  
22 p.m.)

23 MR. TOMB: We have again opened the record and

1     there being no one here, we will now close the record for  
2     the day.

3             (Whereupon, at 3:00 p.m. the hearing was  
4     concluded.)

5     //

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REPORTER'S CERTIFICATE

CASE TITLE: Mine Safety and Health Administration

HEARING DATE: May 27, 1999

LOCATION: Knoxville, Tennessee

I hereby certify that the proceedings and evidence are contained fully and accurately on the tapes and notes reported by me at the hearing in the above case before the Department of Labor, Mine Safety and Health Administration.

Date: May 29, 1999

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